

OPTICAL SWITCHING APPARATUS AND OPTICAL SWITCHING METHOD

This application is a Continuation Application of a pending application Serial No.
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BACKGROUND OF THE INVENTION**Field Of The Invention**

10 The present invention relates to an optical communication device and methods of
 using this device. In particular, the present invention relates to an optical switching
 apparatus suitable for switching and outputting optical signals received from a plurality
 of optical transmission lines to other optical transmission lines, and methods for using
 this apparatus.

Prior Art Of The Invention

15 To handle the sudden increase in data traffic through the Internet, etc. and the
 quickly growing demands for multimedia communication of images, sound and data,
 much progress has been made to increase the speed and the capacity of the transmission
 20 lines and telecommunication network nodes. To achieve a higher transmission speed,
 optical communication devices and optical fiber transmission lines are generally used to
 transmit signals between telecommunication network nodes.

In recent years, to handle the ever increasing speed of communication networks
 and to improve the capacity of communication devices, these communication networks
 25 and devices use optical switching apparatuses such as optical cross-connects (hereafter,
 referred to as OXC) and optical add-drop multiplexing apparatuses (hereafter, referred to
 as OADM), which implement switching processes such as switching of transmission lines
 and switching of circuits without converting optical signals to electric signals before
 processing the signals as in the conventional communication devices.

30 The OXC or OADM typically includes optical switches as its main components.
 At present, since a single stage high-capacity optical switch is not commercially
 available, a high-capacity optical switch is usually implemented through a multi-stage